



SEQUENCE LISTING

<110> Ohlrogge, John B.

Benning, Christoph

Gao, Hongbo

Girke, Thomas

White, Joseph A.

<120> Plant Seed Specific Promoters

<130> MSU-06689

<140> 09/998,059

<141> 2001-11-30

<150> 60/250,401

<151> 2000-12-01

<160> 60

<170> PatentIn version 3.1

<210> 1

<211> 1158

<212> DNA

<213> Arabidopsis thaliana

<400> 1
cacaaacata cactcaaaat ccagactcac atctactcaa ttatgcaact tcatcatgaa 60
aacatcaaaa acagtcaaag taacaaaatc aagtcagatt cagcacacaa agccagtaaa 120
gatagaaaat ttaacgaacg ctcatgctaa gctgcgcaaa atacttccta atcaaaacag 180
taacaacgag taattagcaa aatccgagca gaaaactctc acccacctcc gaaattcacg 240
tcttcactaa aattttcgaa aggaatcgat caataccaac ccattacaca aaatacataa 300
tcaaaatggc gagaatcgta cctggaaact ttgcttcaag tcgcagagag aggaaaagga 360
agatcgtgga gaaaggggtt taggggttaa gtcagactt ctattggagt aaatgggacg 420
gtgtcacatt ttccgttttg gaaatgaact ttgggctcac gttatgggct attagatatt 480
tgatgggctt tctagtaa atcaatataag ttattgggct tagtttaa atagcccatgt 540
tggaatatatt tgacacatgt cttggctact agtgctaaac atgcaaccga acagttgtcg 600
agacaagtcg cagcatatac aatggatcaa acacgcctag tgcgcccgcg tctcgctcat 660
gtgtcacctt gtttcctcgt ttttttttaa ttttccataa gttcttttgt tttatcttca 720

| | | | | | | |
|------------|------------|-------------|------------|-------------|------------|------|
| atacaaat | ttggctgtat | cttgcaaact | cttcgatcat | atcgccaata | tacgtgaaca | 780 |
| ctggatgat | aatttgtt | gttaattgtt | aaatttagat | tctattctcc | ggtttaaaag | 840 |
| tgaattatat | gtatcatgg | taaaacattg | taagtaagat | gataataaaa | tgataaat | 900 |
| agttgatgga | taacgtgaag | caaaaaatga | gatagataca | tttgattttg | tcgtattttg | 960 |
| acatatgcgg | agagtgaag | acgcgcacga | agatcaagag | acacttgctc | gagctcacag | 1020 |
| agtgacgtgt | aaaaagctta | gactgaagtc | cccatgcaaa | cctaataccta | cgtggctcaa | 1080 |
| accacgagct | cacttgacaa | tatataaaact | cctcctaagt | cccgttctct | tcacccatct | 1140 |
| ctcacaacaa | acaaaaag | | | | | 1158 |

<210> 2

<211> 1148

<212> DNA

<213> Arabidopsis thaliana

<400> 2

| | | | | | | |
|-------------|------------|------------|------------|-------------|--------------|------|
| caagagtgt | aaacgtaccg | atcaaatgtc | tttataaaaa | aaacgtgttg | atgttgttct | 60 |
| gtgaatacaa | ttagttctgg | ttaacagctg | gtcgaccatt | ttctgatgag | aatttatgta | 120 |
| aggccattgc | tctgggtgtg | agaagggtta | gtttgggtca | agctaaccgt | ggtagaaaag | 180 |
| ttagaatata | atgtgtttct | tgatcagtg | tatcgatcgg | atttgattta | ttcatattgt | 240 |
| ttactctttg | agtaattcat | agtggtaact | cttttttttt | tttttttttt | ttcatattgg | 300 |
| taactctttg | aatgaaaaa | catagctaag | aattgctagc | tttgatttag | tcgagacgta | 360 |
| cgaactctcg | attttggttt | ttgatttggt | gggtgtaaac | tctcgatatt | cataactcgt | 420 |
| aagattttgt | acgtatcatc | ttcttattct | cttcacgcgt | ctgttttcaa | ttttatgtca | 480 |
| aaacatgggt | ttggtaattt | cttttactcc | tacttcacgg | tttgagttat | aatttttttg | 540 |
| gtaaaccctt | aaccacgagt | tttgatgtat | tttgacacct | ctaattatgt | gtgtatacgt | 600 |
| acacatatata | ttcggtat | tcttaacata | tatatccctc | ataaaaattt | cttacatgca | 660 |
| ttgttcgtga | gtgaccctgt | aatatatata | ttgatagata | ctcttataaa | attatatctt | 720 |
| aaatttcaga | ttaagctggc | acaactatat | ttccaacatc | actagctacc | atcaaaagat | 780 |
| tgactttctca | tcttactcga | ttgaaaccaa | attaacatag | ggttttttatt | ttaaataaaaag | 840 |
| tttaacccttc | tttttaaaaa | attgttcata | gtgtcatgtc | agaacaagag | ctacaaatca | 900 |
| cacatagcat | gcataagcgg | agctatgatg | agtggatttg | ttttgttcgt | cacttgtcac | 960 |
| tctttttcaa | cacataatcc | cgacaacaac | gtaagagcat | ctctctctct | ccacacacac | 1020 |

| | |
|--|------|
| tcatgcatgc atgcattctt acacgtgatt gccatgcaaa tctcctttct cacctataaa | 1080 |
| tacaaaccaa cccttcacta cactcttcac tcaaaccaaa acaagaaaac atacacaaat | 1140 |
| agcaaaac | 1148 |
| <210> 3 | |
| <211> 1032 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 3 | |
| caaaccattg ttacacgtc aatttgaatt gcgtcaaata ttcgactgga atcctacaac | 60 |
| atatttcttc tattatatca ataggaagca acgaacgttc acatgaagcc atgcaaaaac | 120 |
| aaattgagaa aaaaaatcag aaaatttatg acaagtggtc ttgcttctta tactacgtcg | 180 |
| tgaatggatg gtaataaaca attaaatggt acctctagtt tttttttttt gagagaatgg | 240 |
| tttttatccg tatatggctt attacaagtt tcctcctttt tcgagtttgg tttgaggtct | 300 |
| atattgaaga tgagatacta aaaattgagg taaattcttt agtgtgaagg aaaattagta | 360 |
| aatacgatac gtttggaatt gtttactact aaaaaaaaaa ttgtttttaga ccaagccagt | 420 |
| ccgacaaaaa ggcgtgtgaa tcataagaag tatcacatga tgctagacat aaaagatttt | 480 |
| tcaaacatga caaaacaaat tgtgagtgtc ttagtcatgc catttgaagt agaacgaaac | 540 |
| ttagtgatga gacacgtaac atcagtgaga atcaagatct aacttcggac ttatcgtacg | 600 |
| taccacgtcc acctaagtgt tatccatata tactacatgt ctatcttcat tcaatttttt | 660 |
| ttttgcatta acttgtaaac atagtgcata ataattagaa tcaagatttg aatccaattc | 720 |
| gcttactaaa tcctaaatgt taaaagcata catgtttttt aaatcctact tttaggtgct | 780 |
| aagttttttt tctaaggtag ttagagattg ttagatttta tatcattgaa ctgatcatca | 840 |
| gtctctatac taacttctag atctcattga atgtttactc aatttttttt aattttttgt | 900 |
| ttggataatc gtctgctcgt ggttttgatg cgtacgaaca ctcgtcacca tgcattgcaa | 960 |
| gctctccttc ctatataaac taaaaccacc cattattgtc ctcaaaaaca aacacatcaa | 1020 |
| caaaacaaca ag | 1032 |
| <210> 4 | |
| <211> 1409 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |

<400> 4
ctaaacgagt aaagtttagc acgattgaga ccacactgac ccatagcagt ccaatgagct 60
acggaaggcc tagggcttga ggcttgatga gcgcgtggtg gaatagcgtt tgaatctaaa 120
gttcggtttg gtacgacttg taatatgaaa taataatgta caaagaagtt ctacgcttaa 180
gggaactggt ttgttttgag ctttgatga ggacgtctag tgtacaacaa cgaacgtcgt 240
gtataagcga tcgttgactc tgcacatgta actctttcct gaataaaaaa tctttaagtc 300
tttaatttct acatctttta ggattatata aacgttacta tataaataaa aaagaaaaaa 360
aatcagttc actaacatgc gagactttgg gctaaatata gtgattccaa agaaaatgag 420
ttataatatt aattaatata aagctcattt tctttggaat atcgttataa gaatatttta 480
acttgatata aactgggctt acgccatttg catctcgagg attttttggt tttgtttttg 540
tttttttaac acattctcgc acttacacac taaaaatcat aatgatcttc ttaattcttt 600
agcggaaacca ccaattaatc tttttattaa gaactttatt acttatttca cttattttgtg 660
catagctgca ttattttggc agtaacaaat atcgcgttat atatactgaa atccggacgc 720
attaataata gggatatgat tatatgaacc actatctagc tttggtagaa acccaattat 780
aatcaataaa tttaccatta ttgaataaat taggctatat aagttcatta atagatgcta 840
taggtttttc ttacaaggca cacatttgat tgttattttc tttcatatac actgaatgta 900
catgtgtaca cttggcatac atggcaagat tatgtgttac aatatagact gtgccattgc 960
catgcaatgt gactcctgtg gccatttcta tcacaatgtg tcaatcttgg agtatccgtt 1020
gtttatcctc taatttactg attaatattat gaacatgtat aattatttat atcatatgat 1080
ctcgtgaagat atcttagcat tttccaccat atgttattag taaatcatct agatggattg 1140
atgtaaatag gaaagttaaa ttaacacacc aaaaaagtaa ctgattaaaa gcatacaact 1200
taatattcag attatggtaa ctaaatacgt ctcatgcaaa ctccaaaaaa ttatacgagt 1260
cacaactctt gatTTTTTTC cggTTAAACA aaatacatat tttcatttgt atgcaaccag 1320
aataaaacac taactatctc ctttaaatac cttttccct acgagtctac gacgtctctc 1380
aaacttctta tacaaaacaa aacacaccc 1409

<210> 5

<211> 1112

<212> DNA

<213> *Arabidopsis thaliana*

<400> 5
gatccgaaaa gtagagtttc gtggatctga taattggaga agagagaacg agctgaaacc 60
ctaaattcgg ataaagtctg caacttctgt tgtttcgggtg gcgagaacaa aaataatgag 120
aggaagagga aaatatcgtc gtttttgtct cacagtctct ttagcagctt ttcttttagat 180
at ttattttta ttttttccat ggatagagag agctaggcat tccggttatt tggagatttt 240
ggaatttcaa ttttgcggtt tggatatttta ttttatttta tcaatttgaa cgaaacagag 300
ctttgttttg gttacgatgc ggtggatttt ggttcggttt agagtgatat atatttggtg 360
ccaaattaaa ccaagattcg ttttcggtta aaacaaaatt tgatttttaa gcatttttgg 420
aaaaattagt gttatatata tgagatttct taatcaaaat ctcactttta tccgatttag 480
tggtagtcca taaagtgggt tcatgtatat gatacctgaa taaccaacat atgtatttta 540
agagacactt ggaataataa ttctaaatat cctaactact cgtgtccgta tgttttgtca 600
cggtgaaacg tgagaggact agtttttgtc acccgccat aacattctta gacatacatt 660
actttgggag tgaaaaacat taagcttctc tttatccata tattgtctta ccatcaatag 720
acaatatcca atggaccggt gacctgcgtg tataagtaat ttttcaagat gctaaaactt 780
ttatgtattt cagaattaac ctccaaaaac atttattgac aactactac tctttccgta 840
ttgactctca actagtcatt tcaaaataat tgacatgtca gaacatgagt tacacatggg 900
tgcatattgc aagtagacgc ggaaacttgt cacttccttt acatttgagt ttccaacacc 960
taatcacgac aacaatcata tagctctcgc atacaaacaa acatatgcat gtattcttac 1020
acgtgaactc catgcaagtc tcttttctca cctataaata ccaaccacac cttcaccaca 1080
ttcttcactc gaacccaaaac atacacacat ag 1112

<210> 6

<211> 975

<212> DNA

<213> *Arabidopsis thaliana*

<400> 6
tcagaaagag aagtgagcta cctgcagtgt cctctgtttt gtcgatgaag gattttttaga 60
ttggtatgtg atgaagtaca acgagctgat gcctgcgttg atggctatct tcacccaaaag 120
tcgtgtttgt tatgaagcac aacgagctgg tgccctacgtt gatggctata ttcacccaaaag 180
gtcgtgtttc atagatcaga aggcacacct acaacaatga gcagtgccaa ggtttgttct 240
tattttgttg ttgtcagttt tagattttcta gatgaatctt atgatgtgat aatggaaaaa 300
cgaaagaaaa gcttttgtta aagtatctat gagtgatctc atgatatgtc aaaaatgttg 360
catggataca ttgattcttt agtacttggt acgagctgct aagagagtcg tgtcaagttc 420

| | |
|---|-----|
| aatacttttc cttgtcattt aacataattg cttgtctgtt tggattctat tgtgcggaag | 480 |
| ttatgattta tattttcaga ttcatatttt caattaggaa gcttttagtg gaatcaaagt | 540 |
| ggatgaccct gattgaggat tttaatgatc gttgtgagaa cctttcttgt agttagttgg | 600 |
| tggattgtaa aaaaattata tgtatttaac tcttgattga gagtcagaag ttggaaaaat | 660 |
| gaattaagag gttttcgaat aagagatcac agttatagta tagtattaat tggatatcac | 720 |
| aatctattca taatattagc tagttagata aaattgtgtt tgatcttggc aagaggtggt | 780 |
| aaaatagtat catgttgaca tgttggtatg actattagtc gtaatttaag cttatgtata | 840 |
| tttcttgtaa gaaatgttca tgtatcataa taaatacaag tgtatcgagt ttttgtatat | 900 |
| atagaggtct atgatttggg aagaagaaca caacataact caccacaaac acaatcta | 960 |
| ccaaaaaatc aaaag | 975 |

<210> 7

<211> 1117

<212> DNA

<213> Arabidopsis thaliana

<400> 7

| | |
|--|-----|
| tgacacgcaa caaccaaagc caaaaggggtg cgttaccatt aattcagggg aagcgaaata | 60 |
| aacccaaatc tctcttctaa cgaagtaaca actcaccac ttctcacatt gattcactcc | 120 |
| tttccagttt ttacatatag ccttcgttca tcaatcacct taagcaaatt gcaatcacia | 180 |
| aaaaaaaaa gtacagtact tagcaaaatt ttaagttttt gttatttcca cggcaactta | 240 |
| gcaaatatgc accacatatt gacattagct aatatacaac acatgttttt ttagaaatgt | 300 |
| acaagcatta acaaatatcc aacacaaaat gacatgatcg tagatgatta agataattcg | 360 |
| atccctataa ctaatagttt ccaaaaacttc tgctgacttt tctctcgaca gcgatggtaa | 420 |
| gaagaaggta caaagttttg aagcccgaat ataacaaaag gacagaaagc ttttagtttt | 480 |
| ctagataaga tcttagcttt gggtcacgtaa aaaaaattaa aagtgaattg gttaacaata | 540 |
| taggagtact ttgtatccaa aggtcattgc aataaataaa cacttaagta ctctgtagtc | 600 |
| acacatctct aggagcttaa tattggataa tcgcttgtag acttgatta aaatatttag | 660 |
| taggtcaaat ccctatcttc tacagtttct actctcgtcc gtacagacta cagacactat | 720 |
| gctatagttt tgtgttgaat tctacaaagt acaaatcttt ctttcgggtgc caataacaaa | 780 |
| taaacacaat tctcaaatta catttgtcta aatttttatt tgattcggta taaatgtaac | 840 |
| gctatgttgg gaatcatatg ataaatccag attaagactt cttatttaat ttatttttgt | 900 |
| atatataaaa tataatatcc aaccataaag tttttttacc gatcgatgat aatgtgaatc | 960 |

| | |
|--|------|
| caaatatattt aacaggatga taaataattg atgtggcttt tataaccgca gcaattctgg | 1020 |
| cgtgactctc tccgcagcat ttatttttct ctctataaat taaaaacatt acttactctt | 1080 |
| tctctcttcc acttaactca tatcaacctt cgccgga | 1117 |

<210> 8

<211> 1048

<212> DNA

<213> Arabidopsis thaliana

| | |
|--|------|
| <400> 8 | |
| atctctgcaa atcaaacctt attattaagc tacatttaca tagtgcctt ataattctca | 60 |
| tgacatagca acattattaa acgacaactt tctagcttca tttaaaatgg aaaatcacat | 120 |
| aacactcaca ttaactatac taacataaca ctacattac cgactagcat ataaatggat | 180 |
| attgatataa caataatccc ccaaatttat gtctattttg ttcattatgc aaatgtccca | 240 |
| aaatgatata tcttggaag tactaacggg agacgagggc cgaggatag aagtgatttg | 300 |
| gtcgaaccga aatgaggaac ccgggtttgg acaccaggag cattttggta atcatccaaa | 360 |
| tcagggtcat agtacaacat cattcgatcg ctgaagcacc tggatgaagg agacaataac | 420 |
| actgctgcat cgaaccatag cctaaacctt ccaccactct tcttatgaat cggatataac | 480 |
| cagctgctac accagacact acttggtttg tattctctgt ccagccgtac ctctagctgg | 540 |
| ttacctcgt ttcctggaac cagaatcaaa gggtagacgt tgctaccac agcttgacac | 600 |
| atcgaggtca tcgtcaccac aacgagtatc gctatgacta ccgaataatg tgaagatatt | 660 |
| tttttcattt tcgttctaag aaacagactc tcatgggtcat ggatctatgc agaaagctgg | 720 |
| agatttgaag aaaaagggtc attgaatttg aaaaacagag tagtatctta aaacgtaagg | 780 |
| cttaagataa gtagtatatg gtggatatgg aaccgcgta atcatctaga ggctctacaa | 840 |
| atatttattt tgtatttcct tcttattttg tatttgccta cgtggcatta tacaacgtat | 900 |
| ttaacttgaa accagattta tggcccaatg ggtcgggtcg acccgaccga ttttaaactg | 960 |
| cgctcctaac taaaaaaaaag tcaaaacctt ttgaaaaacc taaaaacgca atttgcttcg | 1020 |
| tcgtctctca tctctttctc tttctcgg | 1048 |

<210> 9

<211> 1069

<212> DNA

<213> Arabidopsis thaliana

<400> 9
gtaagtcggt ctctaattctt ccatgccaat ttgctcggtt aaaaccagac tggttggact 60
gaaaaatcgg ttttaattaa ttgagttgtg cttatgaggt ctattggttt atttttaaaa 120
tcctttgtag attaggagag taccaacaag agcgaaagac atcactaaac acgaagagtg 180
aaagtggaaa aagagaacta tcaagacttg actcgaagac cggattgtac ccggatgatt 240
cgaaacaggg cggtgctggt gctgggtctg gtgggtggct ttcttggtgt ctctgttttt 300
cggtgaaaaa ttgaggttat tactctttgt catgtcaatt atttaggtca tagctgtcca 360
agagacgcga gacattagac aaggtaatta ccgattgtat cctatatatt cctatgtaac 420
gaaattcaga tactacgtaa tcttaatgtg tcatggaat gaaaaataa agtattctgt 480
aaatattttc tatatattat ttagcatata tacgctttat aaattataaa tttgggtccct 540
cccaaataca tgaaaacaat gtagtgataa aaaaaaaca aattctgtat atatgctatt 600
tttataacat aacaagcatt tttcttagtc ggtaaattt tcaagtgttt aatactttta 660
tataattatg aacgtaagtt ataatttatg ttttttttgg tcagtccatt attgattatt 720
ccattcacac tatatgcaac ctatattctt cctatgaaac ttttgatcgt gtgttaaata 780
ataatacaaa tttgatttca tctaataagg ggggtggggac tctctaatta cgttctttga 840
catctactca tcaacatttg gctaattctt ctaaaggaat tccatctacc ggtcattttt 900
gtttaaatgc tctcttgtaa ctaaaagtcc gtaccaaact tgtgtaattt cattaacat 960
taattattta gtccattcca tgtcaaata gacttatatg ctcttgctct ataaatttta 1020
aagcaatgag gattcaccaa gtatacatgc ataacaaatt aagagcgag 1069

<210> 10

<211> 1044

<212> DNA

<213> *Arabidopsis thaliana*

<400> 10
gtgagaaaat tcatgagcac tcttagaaat gtaaatagtt tgatttgaag aaatgtgggt 60
tttaagaaga taattgcaaa actcagaaag gatttcacaa aaaacaattc gtgaaatctt 120
tcctgaattt cgtaaaatcc tttctaaatt ttagaaaatt attatttgaa tgattttacg 180
aaatttcgga aagaatctat aaaattcagg aaagatatca taaaatttat gaagagttat 240
acacaacaaa aagaaatttt tgaatttcat gaaatccttc gtaattgctt acattccttc 300
ctaaattttg taaaattctt cctggatttt cttttgcgag aaaatagggg catatatatt 360
ttacgggaaa ttttttgacg aaaacttatt ttggcggaaa aaattgtcag gaatttttgg 420
taatgaatat gtgtattttt ttaattgtta attttaataa taaaataaaa tagttatctg 480

| | |
|---|------|
| aatgttattt atgtcaaaaa aaaatatgaa tgctattttt gtcttaaaaa cttaaaattg | 540 |
| tactatttga aggaatttca ttttatttta ttaatgtgat tagatttata attaaatata | 600 |
| attaaatgat tgtaaatact aacttaaatt cttatttata aacataaagt aatatttaat | 660 |
| tttctttaat taaaaataca tattttattt tcataattta ttttgctttt tttttttttt | 720 |
| agttttgatt tattttttaa catataatat gagtatatga ctatatgaca tagcatattg | 780 |
| gtttattttg attagataga aaaagagacg ggtgaataaa agggtttaat actatgggta | 840 |
| acccaagtat atatcgcca taacaaaaac actatataat tgaggtttgt agattgtgca | 900 |
| aacacgtgtg ggcatatcag cttgtaggat tgccacatac attatcatga gaagcttcca | 960 |
| ccagaataaa gcaaaacaaa aaactccgaa agcggagaga acaaggaaaa ctgaaaaacc | 1020 |
| attgtgaagt atagtccttg atgc | 1044 |

<210> 11

<211> 1141

<212> DNA

<213> Arabidopsis thaliana

<400> 11

| | |
|--|-----|
| caaacgagggc tccaaattca tattcggcct gcatactttt gccctggccc ggtttttttt | 60 |
| tttctttttt tgggtgtttc ataatacatc agcttccata actggagcaa ccgttataga | 120 |
| aagacatgta taagaacccc aaaaaaacag gtacgtcaaa agaggaaatt ctcataacat | 180 |
| acacaatatg ctctaatca gccatcgtgt tgtgctgatc tcttaggtga cattatgtat | 240 |
| atctgtttga tatttcttta acacaacatg ttatcagtta cccatcaaaa cgtagtcagc | 300 |
| ttgaggctct ccaaaaaaat ccacactaga cttccttca tcaacttcaac agacttcaaa | 360 |
| cttctatccc aaaaggaaaa aactaaataa gttgaaagga atggtcgaag gcatggggag | 420 |
| acaccttaata cggcagctag actaatccgg tggattgata agcaaactcg aaacactctt | 480 |
| tctctatca gattattggg ggataggaga tatgacaaaa gactgcaa atgtggtttgct | 540 |
| tctagaagtt aagagcttcc gggattttgt tttttatttt ttcagtgttg taacaaattt | 600 |
| aaattctgtc gcacttgtcg taacaacgat attttttctt tgaatataat ttaacattaa | 660 |
| attaaaaaga aaaactaaat aaattatttt gaagttaata tattatgtta ttatctttgg | 720 |
| tttgcaataa atagatcgag tcaaggctgt tatatgacca ttgtttagtt acgacgctac | 780 |
| ttcatacttg gaatctaagg agaaaaaatg taacatagtt ctcagtactt aatcacatag | 840 |
| ttctcagttc ttaatcactt tattgttaaa acttttcatc gaataattaa tgatttgatc | 900 |
| tccaatctca attaattata tatttctaaa gccaaaagag ataatgaaag gagaggtggt | 960 |

| | | | | | | |
|----------------------------|------------|------------|-------------|-------------|------------|------|
| agaaagaaaa | cgttaatgta | tcaaactcta | ataaaagaaa | ctgcgtgtat | agacacgaag | 1020 |
| gctccgatct | tttgcattgc | tcgcacgtgt | cgctctcttt | cttcctactt | aacacatata | 1080 |
| tgcatgcacc | cttcttagaa | aagtagcaaa | acattgtgaa | tcacgggaga | gagtgggaaa | 1140 |
| c | | | | | | 1141 |
| <210> 12 | | | | | | |
| <211> 1292 | | | | | | |
| <212> DNA | | | | | | |
| <213> Arabidopsis thaliana | | | | | | |
| <400> 12 | | | | | | |
| caccaagcct | atacaaacat | aatttaacgc | cgccatagttt | tgttttattct | gcacgtaaca | 60 |
| tataaagcta | acagatatgc | gacaaaatat | ctataaatta | catatataag | tatatataat | 120 |
| ataagaatgt | tggatgtata | tattagtagt | ttaatcaatg | aaaatatatc | tttatatctt | 180 |
| tattaaaaaa | actaaaaatg | tatctttata | tacatttcgt | agttttaa | caaaattcaa | 240 |
| gatagagcga | aaatgatttt | ttttttttta | aatgaaccaa | aagtacaaca | ttcctacctt | 300 |
| tatttttaat | aactcgttta | tattcgccaa | tcagacacac | acatagactt | ttaaaatagt | 360 |
| aaaagtaact | tagccgatta | tttatgtaaa | atattcgtat | aaaattttta | ttaacaaata | 420 |
| tatttgattt | ctcatcttat | aacctgttta | ttgatcagat | tacacgaaaa | aataactaaa | 480 |
| cagataaatt | tactcgaact | gcatacaata | gagatgtatt | tgtgcatgag | tgtagcccaa | 540 |
| aatgtgttaa | ggaaataaca | cccattggta | ggccgagaca | tgccgtgacc | atggccgctg | 600 |
| aatagtaga | agaaccaa | acctaccaa | gtactcttaa | gctaacgttg | acatgattta | 660 |
| attagattaa | cgattgagta | aacgacaa | tagcgctttc | gttttatatt | aaagacgcac | 720 |
| gatattttaa | tggcaactat | acattaaa | tatataaa | atataactat | aaccaatttg | 780 |
| ataaatgaga | aaaatgtacg | atatgtcgta | ccactccatc | ctgactatga | cttatggagg | 840 |
| aagtcaatgc | ttatcaacta | cttgcttata | aatatcctat | ttatcactat | cagtttttct | 900 |
| cttttctata | catatattat | ttcctataga | tcattgttgg | cataatgtaa | tcaacttaaa | 960 |
| atttaagatc | tactagtttg | tgttgaagta | taactgtata | agcctaaatt | cgaacgtag | 1020 |
| tctgacttaa | tagttaattc | cattttgttt | tgggtaaatg | tttcagtttc | actgctgttt | 1080 |
| ggaaaatctt | tggacagata | ttgagattgg | gcttataata | tttattattg | ggccttaatt | 1140 |
| taagagccct | tttataggca | gatacaaaaa | cgacggcggt | taactcatcc | gctcagcgac | 1200 |
| ttccacatag | ccgttaaaac | gatgataata | aaccaatcc | ggttcatctc | caacagaaga | 1260 |
| acgtaataac | tgatgcttgt | cttcaagtca | ac | | | 1292 |

<210> 13
 <211> 1164
 <212> DNA
 <213> *Arabidopsis thaliana*
 <400> 13
 cacaaacata cactcaaaat ccagactcac atctactcaa ttatgcaact tcatcatgaa 60
 aacatcaaaa acagtcaaag taacaaaatc aagtcagatt cagcacacaa agccagtaaa 120
 gatagaaaat ttaacgaacg ctcatgctaa gctgcgcaaa atacttccta atcaaaacag 180
 taacaacgag taattagcaa aatccgagca gaaaactctc acccacctcc gaaattcacg 240
 tcttcactaa aattttcgaa aggaatcgat caataccaac ccattacaca aaatacataa 300
 tcaaaatggc gagaatcgta cctggaaact ttgcttcaag tcgcagagag aggaaaagga 360
 agatcgtgga gaaaggggtt taggggttaa gctcagactt ctattggagt aaatgggacg 420
 gtgtcacatt ttccgttttg gaaatgaact ttgggctcac gttatgggct attagatatt 480
 tgatgggctt tctagtaa atacaatataag ttattgggct tagtttaa atagcccatgt 540
 tggaaaatatt tgacacatgt cttggctact agtgctaaac atgcaaccga acagttgtcg 600
 agacaagtgc cagcatatac aatggatcaa acacgcctag tgcgcgcgcg tctcgctcat 660
 gtgtcacctt gtttcctcgt ttttttttaa tttttcataa gttcttttgt tttatcttca 720
 atacaaat tttggctgtat cttgcaaact cttcgatcat atcgccaata tacgtgaaca 780
 ctggtgatct aatttggtgt gttaattggt aaatttagat tctattctcc ggtttaaaag 840
 tgaattatat gtatcatggt taaaacattg taagtaagat gataataaaa tgataaattt 900
 agttgatgga taacgtgaag caaaaaatga gatagataca tttgattttg tcgtattttg 960
 acatatgagg agagtgcgct acgcgcacga agatcaagag aacttgctc gagctcacag 1020
 agtgacgtgt aaaaagctta gactgaagtc cccatgcaaa cctaataccta cgtggctcaa 1080
 accacgagct cacttgacaa tatataaact cctcctaagt cccgttctct tcatccatct 1140
 ctcacaacaa acaaaaagaa aatg 1164
 <210> 14
 <211> 1155
 <212> DNA
 <213> *Arabidopsis thaliana*

<400> 14
caagagtgtg aaacgtaccg atcaaagtgc ttataaaaa aaacgtgttg atgttgttct 60
gtgaatacaa ttagttctgg ttaacagctg gtcgaccatt ttctgatgag aatttatgta 120
aggccattgc tctgggtgtg agaagggtta gtttggttca agctaaccgt ggtagaaag 180
ttagaatata atgtgtttct tgatcagtga tatcgatcgg atttgtatta ttcatttgg 240
ttactctttg agtaattcat agtggttaact cttttttttt tttttttttt ttcatttgg 300
taactctttg aaatgaaaaa catagctaag aattgctagc tttgatttag tcgagacgta 360
cgaactctcg attttggttt ttgatttggg ggtgtaaaac tctcgatatt cataactcgt 420
aagattttgt acgtatcatc ttcttattct cttcatcgtc ctgttttcaa ttttatgtca 480
aaacatgggt ttggttaatt cttttactcc tacttcacgg tttgagttat aatttttttg 540
gtaaaccctt aaccacgagt tttgatgtat tttgacacct ctaattatgt gtgtatacgt 600
acacatataa ttcggtattt tcttaacata tatatccctc ataaaaattt cttacatgca 660
ttgttcgtga gtgaccctgt aatatatata ttgatagata ctcttataaa attatattct 720
aaatttcaga ttaagctggc acaactatat ttccaacatc actagctacc atcaaaagat 780
tgacttctca tcttactcga ttgaaaccaa attaacatag ggtttttatt taaataaaag 840
tttaaccttc tttttaaaaa attgttcata gtgtcatgtc agaacaagag ctacaaatca 900
cacatagcat gcataagcgg agctatgatg agtggtattg ttttgttcgt cacttgtcac 960
tcttttccaa cacataatcc cgacaacaac gtaagagcat ctctctctct ccacacacac 1020
tcatgcatgc atgcattctt acacgtgatt gccatgcaa tctcctttct cacctataaa 1080
tacaaccaa cccttacta cactcttcac tcaaaccaa acaagaaaac atacacaaat 1140
agcaaaacat ggcta 1155

<210> 15

<211> 1040

<212> DNA

<213> *Arabidopsis thaliana*

<400> 15
caaaccattg ttacacgtc aatttgaatt gcgtcaaata ttcgactgga atcctacaac 60
atatttcttc tattatatca ataggaagca acgaacgttc acatgaagcc atgcaaaaac 120
aaattgagaa aaaaaatcag aaaatttatg acaagtggtc ttgcttctta tactacgtcg 180
tgaatggatg gtaataaaca attaaatggt acctctagtt tttttttttt gagagaatgg 240
tttttatccg tatatggctt attacaagtt tctcctttt tcgagtttgg tttgaggtct 300
atattgaaga tgagatacta aaaattgagg taaattcttt agtgtgaagg aaaattagta 360

| | | | | | | |
|------------|------------|------------|------------|-------------|-------------|------|
| aatacgatac | gtttggaatt | gtttactact | aaaaaaaaaa | ttgtttttaga | ccaagccagt | 420 |
| ccgacaaaaa | ggcgtgtgaa | tcataagaag | tatcacatga | tgctagacat | aaaagatttt | 480 |
| tcaaacatga | caaaacaaat | tgtgagtgtc | ttagtcatgc | catttgaagt | agaacgaaac | 540 |
| ttagtgatga | gacacgtaac | atcagtgaga | atcaagatct | aacttcggac | ttatcgtagc | 600 |
| taccacgtcc | acctaagtgt | tatccatata | tactacatgt | ctatcttcat | tcaatttttt | 660 |
| ttttgcatta | acttgtaaac | atagtgcata | ataattagaa | tcaagatttg | aatccaattc | 720 |
| gcttactaaa | tcctaaatgt | taaaagcata | catgtttttc | aaatcctact | tttaggtgct | 780 |
| aagttttttt | tctaaggtag | ttagagattg | ttagatttta | tatcattgaa | ctgatcatca | 840 |
| gtctctatac | taacttctag | atctcattga | atgtttactc | aatttttttt | aattttttgt | 900 |
| ttggataatc | gtctgctcgt | ggttttgatg | cgtacgaaca | ctcgtcacca | tgcattgtcaa | 960 |
| gctctccttc | ctatataaac | taaaaccacc | cattattgtc | ctcaaaaaca | aacacatcaa | 1020 |
| caaaacaaca | agaaaaaatg | | | | | 1040 |

<210> 16

<211> 1416

<212> DNA

<213> *Arabidopsis thaliana*

<400> 16

| | | | | | | |
|------------|------------|------------|-------------|------------|-------------|-----|
| ctaaacgagt | aaagtttagc | acgattgaga | ccacactgac | ccatagcagt | ccaatgagct | 60 |
| acggaaggcc | tagggcttga | ggcttgatga | gcgcgtgggtg | gaatagcggt | tgaatctaaa | 120 |
| gttcggtttg | gtacgacttg | taatatgaaa | taataatgta | caaagaagtt | ctacgcttaa | 180 |
| gggaactggt | ttgttttgag | ctttgtatta | ggacgtctag | tgtacaacaa | cgaacgtcgt | 240 |
| gtataagcga | tcgttgactc | tgcacatgta | actctttcct | gaataaaaaa | tctttaagtc | 300 |
| tttaatttct | acatctttta | ggattatata | aacgttacta | tataaataaa | aaagaaaaaa | 360 |
| aaatcagttc | actaacatgc | gagactttgg | gctaaatata | gtgattccaa | agaaaatgag | 420 |
| ttataatatt | aattaatata | aagctcattt | tctttggaat | atcggtataa | gaatatttta | 480 |
| acttgatat | aactgggctt | acgccatttg | catctcgagg | attttttggt | tttgtttttg | 540 |
| tttttttaat | acattctcgc | acttacacac | taaaaatcat | aatgatcttc | ttaattcttt | 600 |
| agcggaacca | ccaattaatc | tttttattaa | gaactttatt | acttatttca | cttatttggtg | 660 |
| catacgtgca | ttattttggc | agtaacaaat | atcgcgttat | atatactgaa | atccggacgc | 720 |
| attaataata | gggatatgat | tatatgaacc | actatctagc | tttggtagaa | acccaattat | 780 |
| aatcaaataa | tttaccatta | ttgaataaat | taggctatat | aagttcatta | atagatgcta | 840 |
| taggtttttc | ttacaaggca | cacatttgat | tgttattttc | tttcatatac | actgaatgta | 900 |

| | |
|--|------|
| catgtgtaca cttggcatac atggcaagat tatgtgttac aatatagact gtgccattgc | 960 |
| catgcaatgt gactcctgtg gccatttcta tcacaatgtg tcaatcttgg agtatccgtt | 1020 |
| gtttatcctc taatttactg attaatattat gaacatgtat aattatttat atcatatgat | 1080 |
| ctcgtaaagat atcttagcat tttccaccat atgttattag taaatcatct agatggattg | 1140 |
| atgtaaatag gaaagttaaa ttaacacacc aaaaaagtaa ctgattaaaa gcatacaact | 1200 |
| taatattcag attatggtaa ctaaatacgt ctcatgcaaa ctccaaaaaa ttatacgagt | 1260 |
| cacaactctt gatTTTTTTC cggTTAAACA aaatacatat tttcatttgt atgcaaccag | 1320 |
| aataaaacac taactatctc ctttaaatac cattttccct acgagtctac gacgctctct | 1380 |
| aaacttctta taaaaaaca aacacacca aatatg | 1416 |

<210> 17

<211> 1121

<212> DNA

<213> Arabidopsis thaliana

<400> 17

| | |
|--|-----|
| gatccgaaaa gtagagtttc gtggatctga taattggaga agagagaacg agctgaaacc | 60 |
| ctaaattcgg ataaagtctg caacttctgt tgtttcggtg gcgagaacaa aaataatgag | 120 |
| aggaagagga aaatatcgtc gtttttgtct cacagtctct ttagcagctt ttcttttagat | 180 |
| atttatttta ttttttccat ggatagagag agctaggcat tccggttatt tggagatttt | 240 |
| ggaatttcaa ttttgcggtt tggattttta ttttatttta tcaatttgaa cgaaacagag | 300 |
| ctttgttttg gttacgatgc ggtggatttt ggttcggttt agagtgatat atatttggtt | 360 |
| ccaaattaaa ccaagattcg ttttcggtaa aaacaaaatt tgatttttaa gcatttttgg | 420 |
| aaaaattagt gttatatata tgagatttct taatcaaaat ctactttta tccgatttag | 480 |
| tggtagttca taaagtgggt tcatgtatat gatacctgaa taaccaacat atgtatttta | 540 |
| agagacactt ggaataataa ttctaaatat cctaactact cgtgtccgta tgttttgtca | 600 |
| cggtgaaacg tgagaggact agtttttgtc acccgtccat aacattctta gacatacatt | 660 |
| actttgggag tgaaaaacat taagcttata tttatccata tattgtctta ccatcaatag | 720 |
| acaatatcca atggaccggt gacctgcgtg tataagtaat ttttcaagat gctaaaactt | 780 |
| ttatgtattt cagaattaac ctccaaaaac atttattgac aactactac tctttccgta | 840 |
| ttgactctca actagtcatt tcaaaataat tgacatgtca gaacatgagt tacacatggg | 900 |
| tgcattattgc aagtagacgc ggaaacttgt cacttccttt acatttgagt ttccaacacc | 960 |

| | |
|--|------|
| taatcacgac aacaatcata tagctctcgc atacaaacaa acatatgcat gtattctttac | 1020 |
| acgtgaactc catgcaagtc tctttttctca cctataaata ccaaccacac cttcaccaca | 1080 |
| ttcttcactc gaacccaaaac atacacacat agcaaaaaat g | 1121 |

<210> 18

<211> 981

<212> DNA

<213> Arabidopsis thaliana

<400> 18

| | |
|--|-----|
| tcagaaagag aagtgagcta cctgcagtgt cctctgtttt gtcgatgaag gattttttaga | 60 |
| ttggtatgtg atgaagtaca acgagctgat gcctgcgttg atggctatct tcacccaaaag | 120 |
| tcgtgtttgt tatgaagcac aacgagctgg tgcctacgtt gatggctata ttcacccaaag | 180 |
| gtcgtgtttc atagatcaga aggcacacct acaacaatga gcagtgccaa ggtttgttct | 240 |
| tattttgttg ttgtcagttt tagatttcta gatgaatctt atgatgtgat aatggaaaaa | 300 |
| cgaagaaaaa gcttttgttt aagtatctat gagtgatatc atgatatgtc aaaaatgttg | 360 |
| catggataca ttgattcttt agtacttggt acgagctgct aagagagtcg tgtcaagttc | 420 |
| aatacttttc cttgtcattt aacataattg cttgtctggt tggattctat tgtgcggaag | 480 |
| ttatgattta tatttttcaga ttcataatctt caattaggaa gcttttagttg gaatcaaagt | 540 |
| ggatgaccct gattgaggat tttaatgata gttgtgagaa cctttcttgt agttagttgg | 600 |
| tggattgtaa aaaaattata tgtatttaac tcttgattga gagtcagaag ttggaaaaat | 660 |
| gaattaagag gttttcgaat aagagatcac agttatagta tagtattaat tggatatcac | 720 |
| aatctattca taatattagc tagttagata aaattgtggt tgatcttggc aagaggtggt | 780 |
| aaaatagtat catgttgaca tgttggtatg actattagtc gtaatttaag cttatgtata | 840 |
| tttcttgtaa gaaatgttca tgtatcataa taaatacaag tgtatcgagt ttttgtatat | 900 |
| atagaggtct atgatttggg aagaagaaca caacataact caccacaaac acaatcta | 960 |
| ccaaaaaatc aaaagatgaa t | 981 |

<210> 19

<211> 1124

<212> DNA

<213> Arabidopsis thaliana

<400> 19
 tgacacgcaa caaccaaagc caaaaggggtg cgttaccatt aattcagggga aagcgaaata 60
 aacccaaatc tctcttctaa cgaagtaaca actcaccacac ttctcacatt gattcactcc 120
 tttccagttt ttacatatag ctttcgttca tcaatcacct taagcaaatt gcaatcacia 180
 aaaaaaaaa gtacagtact tagcaaaatt ttaagttttt gttatttcca cggcaactta 240
 gcaaatatgc accacatatt gacattagct aatatacaac acatgttttt ttagaaatgt 300
 acaagcatta acaaatatcc aacacaaaat gacatgatcg tagatgatta agataattcg 360
 atccctataa ctaatagttt ccaaaaacttc tgctgacttt tctctcgaca gcgatggtaa 420
 gaagaaggta caaagttttg aagcccgaat ataacaaaag gacagaaagc ttttagtttt 480
 ctagataaga tcttagcttt gggtcacgtaa aaaaaattaa aagtgaattg gttacaata 540
 taggagtact ttgtatccaa aggtcattgc aataaataaa cacttaagta ctctgtagtc 600
 acacatctct aggagcttaa tattggataa tcgctttag acttgtatta aaatatttag 660
 taggtcaaat ccctatcttc tacagtttct actctcgccc gtacagacta cagacactat 720
 gctatagttt tgtgttgaat tctacaaagt acaaattctt ctttcgggtgc caataacaaa 780
 taaacacaat tctcaaatta cttttgtcta aatttttatt tgattcggta taaatgtaac 840
 gctatgttgg gaatcatatg ataaatccag attaagactt cttatttaat ttatttttgt 900
 atatataaaa tataatatcc aaccataaag tttttttacc gatcgatgat aatgtgaatc 960
 caaatatttt aacaggatga taaataattg atgtggcttt tataaccgca gcaattctgg 1020
 cgtgactctc tccgcagcat ttatttttct ctctataaat taaaaacatt acttactctt 1080
 tctctcttcc acttaactca tatcaacctt cgccggaaat aatg 1124

<210> 20

<211> 1059

<212> DNA

<213> Arabidopsis thaliana

<400> 20
 atctctgcaa atcaaactt attattaagc tacatttaca tagtgcctt ataattctca 60
 tgacatagca acattattaa acgacaactt tctagcttca tttaaaatgg aaaatcacat 120
 aacactcaca ttaactatac taacataaca ctcacattac cgactagcat ataaatggat 180
 attgatataa caataatccc ccaaatttat gtctattttg ttcattatgc aaatgtccca 240
 aaatgatata tcttggaag tactaaccgg agacgagggt cgaggatag aagtgatttg 300
 gtcgaaccga aatgaggaac ccgggtttgg acaccaggag cattttggta atcatccaaa 360
 tcagggtcat agtacaacat cattcgatcg ctgaagcacc tggatgaagg agacaataac 420

| | |
|--|------|
| actgctgcat cgaaccatag cctaaacat ccaccactct tcttatgaat cggatataac | 480 |
| cagctgctac accagacact acttggcttg tattctctgt ccagccgtac ctctagctgg | 540 |
| ttacctccgt ttcttggaac cagaatcaaa gggtagacgt tgctaccac agcttgacac | 600 |
| atcgaggtca tcgtcaccac aacgagtatc gctatgacta ccgaataatg tgaagatatt | 660 |
| tttttcattt tcgttctaag aaacagactc tcatgggtcat ggatctatgc agaaagctgg | 720 |
| agatttgaag aaaaaggtcc attgaatttg aaaaacagag tagtatctta aaacgtaagg | 780 |
| cttaagataa gtagtatatg gtggatatgg aaccgcgta atcatctaga ggctctacaa | 840 |
| atatttattt tgtatttcct tcttattttg tatttgcccta cgtggcatta tacaacgtat | 900 |
| ttaacttgaa accagattta tggcccaatg ggctcgggtcg acccgaccga ttttaaactg | 960 |
| cgctcctaac taaaaaaaaag tcaaaaccct ttgaaaaacc taaaaacgca atttgcttcg | 1020 |
| tcgtctctca tctctttctc tttctccgtc gccaccatg | 1059 |

<210> 21

<211> 1077

<212> DNA

<213> *Arabidopsis thaliana*

<400> 21

| | |
|--|-----|
| gtaagtcggt ctctaattct ccatgccaat ttgctcgggt aaaaccagac tggttggact | 60 |
| gaaaaatcgg ttttaattaa ttgagttgtg cttatgaggt ctattggttt atttttaaaa | 120 |
| tcctttgtag attaggagag taccaacaag agcgaaagac atcactaaac acgaagagt | 180 |
| aaagtggaaa aagagaacta tcaagacttg actcgaagac cggattgtac ccgatgatt | 240 |
| cgaacaggg cggtgctggt gctggtgctg gtggttggct ttcttgttgt ctctgttttt | 300 |
| cggtgaaaaa ttgaggttat tactctttgt catgtcaatt atttaggtca tagctgtcca | 360 |
| agagacgca gacattagac aaggttaatta ccgattgtat cctatatatt cctatgtaac | 420 |
| gaaattcaga tactacgtaa tcttaatgtg tcgatggaat gaaaaataa agtattctgt | 480 |
| aatatttttc tatatattat ttagcatata tacgctttat aaattataaa tttggtccct | 540 |
| cccaaataca tgaaaacaat gtagtgataa aaaaaaaca aattctgtat atatgctatt | 600 |
| tttataacat aacaagcatt tttcttagtc ggtaaaatt tcaagtgtt aatactttta | 660 |
| tataattatg aacgtaagtt ataatttatg ttttttttgg tcagtccatt attgattatt | 720 |
| ccattcacac tatatgcaac ctatattctt cctatgaaac ttttgatcgt gtgttaaata | 780 |
| ataatacaaa tttgatttca tctaataagg ggggtggggac tctctaatta cgttctttga | 840 |
| catctactca tcaacatttg gctaattctt ctaaaggaat tccatctacc ggatcattttt | 900 |

gtttaaagtc tctcttgtaa ctaaaagtc gtaccaaact tgtgtaattt cattaaacat 960
 taattattta gtccattcca tgtcaaata gacttatatg ctcttgctct ataaatttta 1020
 aagcaatgag gattcaccaa gtatacatgc ataacaaatt aagagcgagc aataatg 1077
 <210> 22
 <211> 1051
 <212> DNA
 <213> *Arabidopsis thaliana*
 <400> 22
 gtgagaaaat tcatgagcac tcttagaaat gtaaatagtt tgatttgaag aaatgtggtt 60
 tttaagaaga taattgcaaa actcagaaag gatttcacaa aaaacaattc gtgaaatctt 120
 tcctgaattt cgtaaaatcc tttctaaatt ttagaaaatt attatttgaa tgattttacg 180
 aaatttcgga aagaatctat aaaattcagg aaagatatca taaaatttat gaagagttat 240
 acacaacaaa aagaaatttt tgaatttcat gaaatccttc gtaattgctt acattccttc 300
 ctaaattttg taaaattctt cctggatttt cttttgcgag aaaatagggg catatatattt 360
 ttacgggaaa ttttttgacg aaaacttatt ttggcgga aaattgtcag gaatttttgg 420
 taatgaatat gtgtattttt ttaattgtta attttaataa taaaataaaa tagttatctg 480
 aatgttatatt atgtcaaaaa aaaatatgaa tgctattttt gtcttaaaaa cttaaaattg 540
 tactatttga aggaatttca ttttatttta ttaatgtgat tagatttata attaaatata 600
 attaaatgat tgtaaatact aacttaaatt cttatttata aacataaagt aatatttaat 660
 tttctttaat taaaaataca tattttattt tcataattta ttttgctttt tttttttttt 720
 agttttgatt tattttttaa catataatat gagtatatga ctatatgaca tagcatattg 780
 gtttattttg attagataga aaaagagacg ggtgaataaa agggtttaat actatggtga 840
 acccaagtat atatcgtcca taacaaaaac actatataat tgaggtttgt agattgtgca 900
 aacacgtgtg ggcatatcag cttgtaggat tgccacatac attatcatga gaagcttcca 960
 ccagaataaa gcaaaacaaa aaactccgaa agcggagaga acaaggaaaa ctgaaaaacc 1020
 attgtgaagt atagtccttg atgcatggat t 1051
 <210> 23
 <211> 1148
 <212> DNA
 <213> *Arabidopsis thaliana*

<400> 23
 caaacgaggc tccaaattca tattcggcct gcatactttt gccctggccc ggtttttttt 60
 tttctttttt tccgtgtttc ataatacatc agcttccata actggagcaa ccgttataga 120
 aagacatgta taagaacccc aaaaaaacag gtacgtcaaa agaggaaatt ctcataacat 180
 acacaatatg ctcctaatac gccatcgtgt tgtgctgac tcctaggtga cattatgtat 240
 atctgtttga tatttcttta acacaacatg ttatcagtta cccatcaaaa cgtagtcagc 300
 ttgaggtcct ccaaaaaaat ccacactaga ccttccttca tcaacttcaac agacttcaaa 360
 cttctatccc aaaaggaaaa aactaaataa gttgaaagga atggtcgaag gcatggggag 420
 acacctaata cggcagctag actaatccgg tggattgata agcaaactcg aaacactctt 480
 tcctctatca gattattggg ggataggaga tatgacaaaa gactgcaa atgtggtttgct 540
 tctagaagtt aagagcttcc gggattttgt tttttatttt ttcagtgttg taacaaattt 600
 aaattctgtc gcacttgtcg taacaacgat attttttctt tgaatataat ttaacattaa 660
 attaaaaaga aaaactaaat aaattatttt gaagttaata tattatgtta ttatctttgg 720
 tttgcaataa atagatcgag tcaaggctgt tatatgacca ttgtttagtt acgacgctac 780
 ttcatacttg gaatctaagg agaaaaaatg taacatagtt ctcagtactt aatcacatag 840
 ttctcagttc ttaatcactt tattgtttaa acttttcatc gaataattaa tgatttgatc 900
 tccaatctca attaattata tttttctaaa gccaaaagag ataataaaag gagagggtgt 960
 agaaagaaaa cgtaaatgta tcaaactcta ataaaagaaa ctgcgtgtat agacacgaag 1020
 gctccgatct tttgcatgtc tcgcacgtgt cgtcctcttt cttcctactt aacacatata 1080
 tgcattgcacc cttcttagaa aagtagcaaa acattgtgaa tcacgggaga gagggggaaa 1140
 catggaga 1148

<210> 24

<211> 1300

<212> DNA

<213> *Arabidopsis thaliana*

<400> 24
 caccaagcct atacaaacat aatttaacgc cgcctagttt tgtttattct gcacgtaaca 60
 tataaagcta acagatatgc gacaaaatat ctataaatta catatataag tatatataat 120
 ataagaatgt tggatgtata tattagtagt ttaatcaatg aaaatatatc tttatatctt 180
 tattaaaaaa actaaaaatg tatctttata tacatttcgt agttttaa atcaaaattcaa 240
 gatagagcga aaatgatttt ttttttttta aatgaaccaa aagtacaaca ttcctacctt 300
 tattttta atactgttta tattegccaa tcagacacac acatagactt ttaaaatagt 360

| | |
|---|------|
| aaaagtaact tagccgatta tttatgtaaa atattcgtat aaaattttta ttaacaaata | 420 |
| tatttgattt ctcatcttat aacctgttta ttgatcagat tacacgaaaa aataactaaa | 480 |
| cagataaatt tactcgaact gcatacaata gagatgtatt tgtgcatgag tgtagcccaa | 540 |
| aaatgtgtaa ggaaataaca cccattggta ggccgagaca tgctgtacc atggccgctg | 600 |
| aaatagtaga agaaccaa atctaccaa gtactcttaa gctaacgttg acatgattta | 660 |
| attagattaa cgattgagta aacgacaaat tagcgctttc gttttatatt aaagacgcac | 720 |
| gatatttaaa tggcaactat acattaaaat tatataaaat atataactat aaccaatttg | 780 |
| ataaatgaga aaaatgtacg atatgtcgta ccactccatc ctgactatga cttatggagg | 840 |
| aagtcaatgc ttatcaacta cttgcttata aatatcctat ttatcactat cagtttttct | 900 |
| cttttctata catatattat ttcctataga tcatgttggc cataatgtaa tcaacttaaa | 960 |
| atttaagatc tactagtttg tgttgaagta taactgtata agcctaaatt cgaacgtag | 1020 |
| tctgacttaa tagttaattc cattttgttt tgggtaaag tttcagtttc actgctgttt | 1080 |
| ggaaaatctt tggacagata ttgagattgg gcttataata tttattattg ggccttaatt | 1140 |
| taagagccct tttataggca gatacaaaaa cgacggcgtt taactcatcc gctcagcgac | 1200 |
| ttccacatag ccgttaaaac gatgataata aaccaatcc ggttcattct caacagaaga | 1260 |
| acgtaataac tgatgcttgt cttcaagtca accatggagt | 1300 |

<210> 25

<211> 1433

<212> DNA

<213> Arabidopsis thaliana

<400> 25

| | |
|--|-----|
| gatctctccc gaagaagcta aacgagtaaa gtttagcacg attgagacca cactgaccca | 60 |
| tagcagtcca atgagctacg gaaggcctag ggcttgaggc ttgatgagcg cgtgggtggaa | 120 |
| tagcgtttga atctaaagtt cggtttggtg cgacttgtaa tatgaaataa taatgtacaa | 180 |
| agaagttcta cgcttaaggg aactgttttg ttttgagctt tgtattagga cgtctagtgt | 240 |
| acaacaacga acgtcgtgta taagcgatcg ttgactctgc acatgtaact ctttcctgaa | 300 |
| taaaaaatct ttaagtcttt aatttctaca tcttttagga ttatataaac gttactatat | 360 |
| aaataaaaaa gaaaaaaaaa tcagttcact aacatgcgag actttgggct aaatatagtg | 420 |
| attccaaaga aaatgagtta taatattaat taatataaag ctcatcttct ttggaatctc | 480 |
| gttataagaa tatttttaact tggatataac tgggcttacg ccatttgcat ctcgaggatt | 540 |
| ttttgttttt gtttttgttt ttttaataca ttctcgact tacacactaa aaatcataat | 600 |
| gatcttctta attcttttagc ggaaccacca attaatcttt ttattaagaa ctttattact | 660 |

| | |
|--|------|
| tatttcactt atttgtgcat acgtgcatta ttttggcagt aacaaatata gcgttatata | 720 |
| tactgaaatc cggacgcatt aataataggg atatgattat atgaaccact atctagcttt | 780 |
| ggtagaaacc caattataat caaataatth accattattg aataaattag gctatataag | 840 |
| ttcattaata gatgctatag gtttttctta caaggcacac atttgattgt ttttttcttt | 900 |
| catatacact gaatgtacat gtgtacactt ggcatacatg gcaagattat gtgttacaat | 960 |
| atagactgtg ccattgccat gcaatgtgac tcctgtggcc atttctatca caatgtgtca | 1020 |
| atcttggagt atccgttggt tatcctctaa ttactgatt aatttatgaa catgtataat | 1080 |
| tatttatatc atatgatctc gtaagatatc ttagcatttt ccaccatatg ttattagtaa | 1140 |
| atcatctaga tggattgatg taaataggaa agttaaatta acacacaaaa aaagtaactg | 1200 |
| attaaaagca tacaacttaa tattcagatt atggtaacta aatcagtctc atgcaaactc | 1260 |
| caaaaaatta tacgagtcac aactcttgat ttttttccgg ttaaacaaaa tacatatttt | 1320 |
| catttgtatg caaccagaat aaaacactaa ctatctcctt taaataccat tttccctacg | 1380 |
| agtctacgac gctctctaaa cttcttatac aaaacaaaac acacccaa atg | 1433 |
| <210> 26 | |
| <211> 57 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 26 | |
| attccaaaga aaatgagtta taatattaat taatataaag ctcatthttct ttggaat | 57 |
| <210> 27 | |
| <211> 1080 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 27 | |
| catctctgca aatcaaactt tattattaag ctacatttac atagtgtcct tataattctc | 60 |
| atgacatagc aacattatta aacgacaact ttctagcttc atttaaaatg gaaaatcaca | 120 |
| taacactcac attactata ctaacataac actcacatta ccgactagca tataaatgga | 180 |
| tattgatata acaataatcc cccaaattta tgtctatthtt gttcattatg caaatgtccc | 240 |
| aaaatgatat atcttggaaa gtactaaccg gagacgaggg tcgaggtata gaagtgattt | 300 |
| ggtcgaaccg aaatgaggaa cccgggtttg gacaccagga gcatttttgt aatcatccaa | 360 |
| atcaggggtca tagtacaaca tcattcgatc gctgaagcac ctggtgaagg gagacaataa | 420 |
| cactgctgca tcgaaccata gcctaaacca tccaccactc ttcttatgaa tcggatataa | 480 |

| | |
|--|------|
| ccagctgcta caccagacac tacttggtt gtatttctctg tccagccgta cctctagctg | 540 |
| gttacctccg tttcctggaa ccagaatcaa aggttacacg ttgctacca cagcttgaca | 600 |
| catcgaggtc atcgtcacca caacgagtat cgctatgact accgaataat gtgaagatat | 660 |
| ttttttcatt ttcgttctaa gaaacagact ctcatggtca tggatctatg cagaaagctg | 720 |
| gagatttgaa gaaaaaggtc cattgaattt gaaaaacaga gtagtatctt aaaacgtaag | 780 |
| gcttaagata agtagtatat ggtggatatg gaaccgcgt aatcatctag aggtctaca | 840 |
| aatatttatt ttgtatttcc ttcttatttt gtatttgcct acgtggcatt atacaacgta | 900 |
| tttaacttga aaccagattt atggccaat gggtcgggtc gaccgaccg attttaaact | 960 |
| gcgctcctaa ctaaaaaaaa gtcaaaaccc ttgaaaaac ctaaaaacgc aatttgcttc | 1020 |
| gtcgtctctc atctctttct ctttctccgt cgccaccatg tttgagtacc ggtgcagctc | 1080 |
| <210> 28 | |
| <211> 26 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 28 | |
| aatgggtcgg gtcgacccga ccgatt | 26 |
| <210> 29 | |
| <211> 1140 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 29 | |
| agggactagg aacttaagaa aaacaaagtc atcaaaaaaa caaaaaaaaaa gttgtgagaa | 60 |
| aattcatgag cactcttaga aatgtaaata gtttgatttg aagaaatgtg gtttttaaga | 120 |
| agataattgc aaaactcaga aaggatttca caaaaaacaa ttcgtgaaat ctttcctgaa | 180 |
| tttcgtaaaa tcctttctaa attttagaaa attattattt gaatgatttt acgaaatttc | 240 |
| ggaaagaatc tataaaattc aggaaagata tcataaaatt tatgaagagt tatacacaac | 300 |
| aaaaagaaat ttttgaattt catgaaatcc ttcgtaattg cttacattcc ttctaaatt | 360 |
| ttgtaaaatt cttcctggat tttcttttgc gagaaaatag gggcatatat tttttacggg | 420 |
| aaattttttg acgaaaactt attttggcgg aaaaaattgt caggaatttt tggtaatgaa | 480 |
| tatgtgtatt tttttaattg ttaattttta taataaaata aaatagttat ctgaatgtta | 540 |
| tttatgtcaa aaaaaaatat gaatgctatt tttgtcttaa aaacttaaaa ttgtactatt | 600 |
| tgaaggaatt tcattttatt ttattaatgt gattagattt ataattaaat ataattaaat | 660 |

gattgtaaat actaacttaa attcttattt ataaacataa agtaatatatt aattttcttt 720
aattaaaaat acatatttta ttttcataat ttattttgct tttttttttt ttttagttttg 780
atattttttt aaacatataa tatgagtata tgactatatg acatagcata ttgggtttatt 840
ttgattagat agaaaaagag acgggtgaat aaaaggggtt aatactatgg tgaacccaag 900
tatatatcgt ccataacaaa aacactatat aattgagggtt tgtagattgt gcaaacacgt 960
gtgggcatat cagcttgtag gattgccaca tacattatca tgagaagctt ccaccagaat 1020
aaagcaaaac aaaaaactcc gaaagcggag agaacaagga aaactgaaaa accattgtga 1080
agtatagtcc ttgatgcatg gattcaatca acaagatcat caacttcttg tttcctctct 1140
<210> 30
<211> 109
<212> DNA
<213> Arabidopsis thaliana
<400> 30
tgaaatcttt cctgaatttc gtaaaatcct ttctaaattt tagaaaatta ttatttgaat 60
gattttacga aatttcggaa agaatctata aaattcagga aagatatca 109
<210> 31
<211> 32
<212> DNA
<213> Arabidopsis thaliana
<400> 31
cactggatcc tttttgtttg ttgtgagaga tg 32
<210> 32
<211> 30
<212> DNA
<213> Arabidopsis thaliana
<400> 32
cactgaattc acaaacatac actcaaaatc 30
<210> 33
<211> 34
<212> DNA
<213> Arabidopsis thaliana

| | |
|---------------------------------------|----|
| <400> 33 | |
| cactggatcc gttttgctat ttgtgtatgt tttc | 34 |
| <210> 34 | |
| <211> 27 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 34 | |
| cactgaattc aagagtgtaa aacgtac | 27 |
| <210> 35 | |
| <211> 31 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 35 | |
| cactggatcc ttgttggttt gttgatgtgt t | 31 |
| <210> 36 | |
| <211> 25 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 36 | |
| cactgaattc cattgtttac acgtc | 25 |
| <210> 37 | |
| <211> 33 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 37 | |
| cactggatcc ggggtgtgttt tgttttgtat aag | 33 |
| <210> 38 | |
| <211> 31 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 38 | |
| cactgaattc taaacgagta aagtttagca c | 31 |

<210> 39
 <211> 31
 <212> DNA
 <213> Arabidopsis thaliana
 <400> 39
 cactggatcc tatgtgtgta tgttttggtt c 31
 <210> 40
 <211> 30
 <212> DNA
 <213> Arabidopsis thaliana
 <400> 40
 cactgaattc gatccgaaaa gtagagtttc 30
 <210> 41
 <211> 43
 <212> DNA
 <213> Arabidopsis thaliana
 <400> 41
 cactggatcc ttttgatttt ttggattaga ttgtgtttgt ggt 43
 <210> 42
 <211> 26
 <212> DNA
 <213> Arabidopsis thaliana
 <400> 42
 cactgaattc agaaagagaa gtgagc 26
 <210> 43
 <211> 27
 <212> DNA
 <213> Arabidopsis thaliana
 <400> 43
 cactggatcc ggcgaagggt gatatga 27
 <210> 44
 <211> 28
 <212> DNA
 <213> Arabidopsis thaliana

| | |
|-------------------------------------|----|
| <400> 44 | |
| cactcaattg acacgcaaca accaaagc | 28 |
| <210> 45 | |
| <211> 28 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 45 | |
| cactggatcc ggagaaagag aaagagat | 28 |
| <210> 46 | |
| <211> 28 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 46 | |
| cactgaattc atctctgcaa atcaaacc | 28 |
| <210> 47 | |
| <211> 30 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 47 | |
| cactggatcc tcgctcttaa tttgttatgc | 30 |
| <210> 48 | |
| <211> 30 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 48 | |
| cactcaattg taagtcgttc tctaattcttc | 30 |
| <210> 49 | |
| <211> 31 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 49 | |
| cactggatcc gcatcaagga ctataacttca c | 31 |

<210> 50
 <211> 32
 <212> DNA
 <213> Arabidopsis thaliana
 <400> 50
 cactgaattc gtgagaaaat tcatgagcac tc 32
 <210> 51
 <211> 26
 <212> DNA
 <213> Arabidopsis thaliana
 <400> 51
 cactggatcc gtttcccact ctctcc 26
 <210> 52
 <211> 28
 <212> DNA
 <213> Arabidopsis thaliana
 <400> 52
 cactgaattc aaacgaggct ccaaattc 28
 <210> 53
 <211> 28
 <212> DNA
 <213> Arabidopsis thaliana
 <400> 53
 cactggatcc gttgacttga agacaagc 28
 <210> 54
 <211> 27
 <212> DNA
 <213> Arabidopsis thaliana
 <400> 54
 cactgaattc accaagccta tacaac 27
 <210> 55
 <211> 22
 <212> DNA
 <213> Arabidopsis thaliana

| | |
|---------------------------------------|----|
| <400> 55 gtaatacgac tcactatagg gc | 22 |
| <210> 56 | |
| <211> 22 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 56 acaggaaaca gctatgacca tg | 22 |
| <210> 57 | |
| <211> 23 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 57 cccagtcacg acgttgtaaa acg | 23 |
| <210> 58 | |
| <211> 23 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 58 agcggataac aatttcacac agg | 23 |
| <210> 59 | |
| <211> 23 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 59 cgaagctttc ttcacggtg att | 23 |
| <210> 60 | |
| <211> 22 | |
| <212> DNA | |
| <213> Arabidopsis thaliana | |
| <400> 60 ggtcggaatt cgtgtatgtt tt | 22 |